

### **ABSTRACT OF THE DISCLOSURE**

A formation treatment tool assembly is conveyed within a well casing by a tubing string and has a housing defining treatment fluid supply and discharge passages and a fluid injection port through which treatment fluid is directed from the supply passage into a packer isolated casing interval and a fluid inlet port permitting flow from the isolated casing interval to the fluid discharge passage. Spaced straddle packer elements of the tool are energized to establish sealing engagement with the well casing and define an isolated casing interval and are de-energized to retract from sealing engagement with the well casing and permit tubing conveyance. A dump valve connected with the tool housing is opened to permit flow of treatment fluid from the isolated casing interval through the treatment fluid discharge passage and is closed to confine treatment fluid to the isolated casing interval. A hydraulic or mechanically actuated tubing isolation valve is selectively closed to isolate the tubing string from casing or formation pressure and permit tool conveyance while maximizing the service life of the tubing string and to accommodate overpressured and underbalanced reservoir conditions.